

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
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August 2, 2013

To: Benjamin Airth (benjamin.airth@energycenter.org)
Kim Ngo (KxN8@pge.com)
Mike Tomlin (Michael.Tomlin@sce.com)

Re: CSI Measurement and Evaluation Plan Update

Delivered via email

Dear CSI Program Administrators:

I am writing to you to apprise you of an Update (see attachments A and B) to the California Solar Initiative (CSI) Measurement and Evaluation (M&E) Plan. The Update should go into effect immediately.

In order to measure the impact of the CSI program, and evaluate such qualities as cost effectiveness, the CSI has always incorporated an M&E component. The first M&E plan was issued in an Assigned Commissioner's ruling, dated July 28, 2008. That plan was modified in Southern California Edison's advice letter 2567-E. While modifying the M&E budget to reflect actual expenditures and changing expectations that plan also stated the following:

The CSI PAs recommend that the Energy Division be given flexibility to review and, in consultation with the CSI PAs, to make changes to the CSI M&E plan and budget allocations to each study area as needed without requiring the CSI PAs to file an Advice Letter.

Energy Division is now exercising this authority and, having consulted extensively with the Program Administrators regarding this M&E Plan Update, is providing you with the Updated CSI M&E Plan.

A few highlights of the Updated Plan:

1. Public reporting will be funded with M&E dollars.
2. Public reporting will include efforts to report on rooftop photovoltaic (PV) generation that did not receive CSI rebates.
3. Some studies may be consolidated.
4. PAs may manage some contracts.

Thank you for cooperation in implementing this Updated Plan expeditiously.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "Edward Randolph".

Edward Randolph
Director Energy Division
California Public Utilities Commission

Attachment A

Energy Division's 2013 Update to the General Market Portion of the California Solar Initiative Measurement and Evaluation Plan

1. Summary

The California Solar Initiative (CSI) currently has the following budget allocations for Measurement and Evaluation (M&E) activities.

| | |
|---------------------------------|-----------------|
| General Market | \$25.45 million |
| SASH | \$1.08 million |
| MASH | \$1.08 million |
| RD&D | \$0.50 million |
| CSI-Thermal Electric-displacing | \$1.25 million |
| CSI-Thermal Gas-displacing | \$5.00 million |
| Total CSI | \$34.36 million |

This revision will not change any of these amounts. Rather, this 2013 Update:

- (1) Revises the project and budget status of General Market M&E efforts, and
- (2) Makes several changes:

- a. Public reporting will be funded with M&E dollars.
- b. Public reporting will include efforts to report on rooftop photovoltaic (PV) generation that did not receive CSI rebates.
- c. Some studies may be consolidated.
- d. PAs may manage some contracts.

2. Background

The proposed revisions continue to maintain the goals and requirements of the M&E Plan described on page 9 of Appendix A of the Assigned Commissioners Ruling issued on July 28, 2008 (July 2008 ACR) to:

- 1. *Utilize a standardized process for evaluating programs and reporting program results;*
- 2. *Provide credible and objective information on program impacts and performance;*
- 3. *Provide policy and program related information to ensure achievement of CSI program goals and support the "Periodic CSI Review Process" and;*

4. *Produce an accurate assessment of future opportunities to further the goals of SB 1 and established Commission objectives and directives.*

In Decision (D.) 10-09-046, the California Public Utilities Commission (Commission or CPUC) reduced the California Solar Initiative (CSI) General Market Program Measurement and Evaluation (M&E) budget from \$46.7 million to \$26.7 million with \$25.45 million allocated to non CSI-Thermal M&E activities and \$1.25 million allocated to CSI Thermal M&E.

In a joint Advice Letter¹ filed by the CSI Program Administrators in April 2011, the M&E plan was updated, and the PAs recommended that:

...the Energy Division be given flexibility to review and, in consultation with the CSI PA, to make changes to the CSI M&E plan and budget allocations to each study area as needed without requiring the CSI PAs to file an Advice Letter. This flexibility will allow for a more efficient planning and review process for the CSI M&E plan.

Energy Division has consulted with CSI Program Administrators (PAs) about changes to the M&E effort. This Appendix, the 2013 CSI M&E Update, describes the M&E plan going forward.

3. Non-General Market M&E Plans

The MASH and SASH programs have spent \$0.65 million for M&E studies out of an allocated total of \$2.16 million. The CSI Thermal (electric displacing and gas displacing) program and the RD&D programs are allocated \$6.25 million and \$0.50 million, respectively. The Energy Division expects to work with the PAs in the near future to develop plans for these CSI sub-programs.

4. General Market M&E Study Schedule and Budgets

a. Impact Evaluations

The Impact Evaluations provide important analyses of customer-solar installed through the CSI program. The CSI program has conducted Impact Evaluations covering program years 2007 through 2010 and is currently evaluating program impacts for program years 2011-2012. Impact Evaluations also represent a considerable portion of the total CSI M&E budget. To conserve on budget, in the

¹ Advice 2567-E (Southern California Edison Company U 338-E); Advice 3825-E (Pacific Gas and Electric Company U 39-E); Advice 16 (California Center for Sustainable Energy).

April 2011 M&E Plan the Commission allowed for these studies to be conducted biennially, rather than annually.

Beginning with the 2010 CSI Impact Evaluation, the Energy Division requested that these studies estimate the impacts of customer-solar photovoltaic (PV) systems installed through other programs in investor-owned utility (IOU) territories including Emerging Renewables Program, New Solar Homes Partnership Program, and Self Generation Incentive Program (SGIP). And starting with the 2011-2012 study, more data from non-rebated customer-owned distributed generation (DG) as well as from publicly-owned utilities will be incorporated. The April 2011 M&E Plan allows for Impact Evaluations to be jointly funded by CSI and SGIP. This 2013 Update does not assume any contribution from the SGIP program, but will allow for it if such a determination is made for future Impact Evaluations. Finally, based on program experience, the estimate for each future study is lowered from \$1.5 million to \$1.0 million.

b. Metering

A contractor was hired at the outset of CSI M&E activities to install and monitor meters on a sampling CSI participating homes. This activity, for which \$3.66 million is allocated, is ongoing.

c. Process Evaluations

In Section 3.3.5 of the July 2008 ACR, the Commission requires biennial Process Evaluations, which include Program Administration Comparative Assessments and Best Practice Studies. Thus far, the CSI program has conducted one Process Evaluation covering program years 2009 and 2010. The April 2011 M&E Plan calls for one remaining Process Evaluation – in 2014 rather than the three remaining – in 2012, 2014, and 2016.

Subsequent to the April 2011 M&E Plan, the Program Administrators began to post online program administrative tracking data updated weekly and monthly². This is supplemented by an annual Data Annex written report³. Such data include reservation application processing times; incentive claim processing times; payment times; interconnection times; trainings offered; program dropouts, and net energy metering (NEM) participation. These data give a glimpse into the processing and administrative challenges and issues that PAs may face. This regular tracking has replaced much of the need for ongoing Process Evaluation reports.

Currently, three of the six General Market sub-programs have substantially depleted their funding and are nearly closed. Given the late stage of the CSI program the Energy Division and the PAs may decide to cancel any further Process Evaluation studies or exclude one or more PAs from the evaluation if their programs have ended. Nevertheless, the budget shown here has a place holder for such a study.

² http://www.californiasolarstatistics.ca.gov/reports/data_annex/

³ <http://www.cpuc.ca.gov/PUC/energy/Solar/legreports.htm>

d. Cost-Effectiveness Studies

In Section 3.3.6 of the July 2008 ACR, the Commission requires that a CSI Cost-Effectiveness study be performed every third year – in 2009, 2012, 2015, and 2017. In 2010, the CSI program released a CSI Cost-Effectiveness and a net energy metering (NEM) Cost-Benefits study. A follow-on net energy metering cost effectiveness study is now nearing completion. The April 2011 Plan reduced the number of studies and lowered the budget from \$1.9 million to \$1.35 million. This 2013 Update adds a study in 2015 and brings the budget to \$1.85 million.

e. Market Transformation Studies

The Commission, in the July 2008 ACR, required Market Transformation studies to be conducted in 2010, 2013, and 2016. As a result of the April 2011 Plan the three studies were consolidated to one now under way and to one optional study in 2016, to be conducted if determined necessary by the Energy Division and the CSI PAs. The April 2011 Plan reduced the budget for Market Transformation studies from \$10 million to \$1.5 million. This 2013 Update preserves that outlook.

f. On-going Progress Studies

The Commission, in the July 2008 ACR, allocated \$3.6 million to On-going Progress Studies. The April 2011 Plan allocated these to the “Optional Studies” category. Progress Studies may still occur if the Energy Division places a higher priority on these studies than on other “optional” studies.

g. Financial Audits

The budget allocated for the External Financial Audits in the July 2008 ACR is \$2 million. The Financial Audit of the CSI PAs that was completed in 2010 cost the program just over \$200,000, and the April 2011 Plan accordingly lowered the category’s allocation to \$900,000. The Financial Audit now under way is contracted at just under \$200,000. This 2013 Update leaves the category’s allocation at roughly \$900,000.

h. AB 578 DG Impacts Study

In response to Assembly Bill (AB) 578 (Blakeslee, 2008), the SGIP programs funded a study in January 2010 on the impacts of distributed generation (DG) on California’s transmission and distribution (T&D) systems. AB 578 requires that follow-up studies be conducted and submitted to the Legislature on a biennial basis. In the April 2011 Plan, the Commission authorized these studies to be co-funded by the CSI and SGIP programs with 70% of the funding to come from CSI and 30% from SGIP. The April 2012 Plan authorized a total CSI budget for these studies be \$210,000 and this 2013 Update does not change that sum.

The April 2011 Plan foresaw a 2014 report and a 2016 report, each costing \$55,000. The study now being completed will cost about \$100,000 and it is likely

that future studies will be in that range. This 2013 Update is introducing (see below) another, more in-depth Transmission and Distribution study, scheduled for 2014,

Inasmuch as AB 578 does not specify that *only* customer-side DG installed through CSI, SGIP, and NEM is to be included in the analysis, and that wholesale DG would conceivably have more concentrated effects on California's T&D system, the CSI PAs recommended in the April 2011 Plan that additional funding for this study be provided by wholesale DG programs. However, no such arrangements have yet been made.

i. Transmission and Distribution

With falling prices, rooftop PV is increasingly attractive to customers, and thus the future of the technology might seem to be assured. And yet the impact of rooftop PV on the utilities' distribution and transmission networks, once its contribution to the resource mix grows beyond the low single digits, needs to be better understood. What impact will higher penetration have on service reliability, electricity quality, utility employee safety, and customer rates? The AB 578 report which is now being completed contains a Draft scope of work for this study.

It was noted above that this Transmission and Distribution study may be modified to encompass the next AB 578 report. Depending on how the timing unfolds, the Energy Division and the PAs may also consider consolidating this Transmission and Distribution study together with an Impact Evaluation. Such a determination can be made closer to the time of the contract. For purposes of this 2013 Update, the Transmission and Distribution study is treated as a separate study.

Energy Division currently is acting as project manager for all the active M&E contracts. The PAs have expressed interest in managing this Transmission and Distribution contract. Energy Division is open, in principle, to this idea, given the utilities' greater in-house expertise on matters dealing with the grid. At the same time, Energy Division believes this study may present a conflict of interest to utilities wishing to curtail an incipient rival, and so wishes to be cautious about designating too much authority to the utilities. The question of contract management will be reviewed closely.

j. Public Reporting

CSI Public Reporting activities include creating and managing the California Solar Statistics (CSS) website⁴, compiling and cleaning the data that goes into the Working Data Set (WDS), and from there into the website's graphs and tables. Although the Commission has not ordered the PAs to pay for this activity out of their Administrative (excluding M&E) budgets, historically they have done so. In this 2013 Update, Energy Division is designating Public Reporting as an M&E activity and thus both explicitly and implicitly authorizing the PAs to pay for Public Reporting out of their M&E budgets.

⁴ <http://www.californiasolarstatistics.ca.gov/>

Until now, the Public Reporting effort has focused almost exclusively on CSI projects. With the sun setting on some of the CSI sub-programs, as well as the growing tendency of building owners to install rooftop PV without the benefit of rebates, the CSS website and the WDS database will soon become a backwater unless it is able to keep tabs on all rooftop installations, even those outside the CSI program. Fortunately, the utility interconnection departments now already gather most of the data that are used on the CSS website, and those data need only to be (1) transferred to the CPUC or the contractor managing the CSS site and (2) cleaned and incorporated into the CSI dataset. While challenging, this effort is not expected to be prohibitively difficult.

Finally, depending on PA performance in managing the transition to incorporating interconnection department data, CPUC may take over contract management of the ES contract at the time of the next contract renewal.

k. AMI Studies

In Decision 11-07-031 the Commission ordered the PAs to file a report on the potential for using Advanced Metering Infrastructure (AMI) in metering and tracking usage and generation. While SCE and CCSE/SDG&E completed these reports with in-house experts, PG&E hired outside consultants. The amount paid, \$38,000 is recorded as line item in the plan. There is no plan for future expenditures in this category.

l. Project Coordination

The CSI Project Coordinator, described in Section 3.3.1 of the July 2008 ACR, is responsible for coordinating the research, planning and budget tracking activities of the CSI M&E effort. The April 2011 Plan reduced the scope of activities and the budgeted amount for this contract from \$1.6 million to \$1.2 million. This 2013 Update leaves that total substantially unchanged.

m. M&E Staffing Expenditures

The Commission, in the July 2008 ACR, required that funding for CSI PA staffing for support and management of CSI M&E come out of the CSI program administration budget. However, in the Staff Proposal for Program Modifications to the CSI Program attached as an appendix to the Administrative Law Judge's Ruling issued on July 26, 2010, the Energy Division recommended that M&E staff time at the CPUC (up to 3 PURA positions) and CSI PAs (up to 2 FTEs per CSI PA) be charged to the CSI evaluation budget. The April 2011 Plan authorized \$3.9 million to be allocated for M&E staff time through 2017. This budget assumes 1.5 FTEs per CSI PA and 1.5 PURA positions at the CPUC with a 50% reduction in staff time in 2017 for program closeout. Program experience has shown that the Energy Division and PAs are billing the CSI program at a rate substantially below this level and that a total allocation of \$3.10 million should suffice to cover this obligation. However, should additional evaluation and public reporting needs exceed this budget reserve funding from section "n" will be made available to cover those costs.

n. Optional Analyses / Reserve Funding

The General Market program (excluding the electric-displacing CSI-Thermal Program) has an authorized budget of \$25.45 million. The M&E activities noted above total \$23.58 million, leaving \$1.87 million unallocated. This Update reserves that amount for future optional studies and for unforeseen cost overruns related to projects or M&E staff time for additional evaluation and/or public reporting.

o. M&E Plan Periodic Review and Revisions

The April 2011 Plan authorized the Energy Division to be given flexibility to review and, in consultation with the CSI PAs, make changes to the CSI M&E plan and budget allocations to each study area as needed without requiring the CSI PAs to file an Advice Letter. This purpose of this was to provide flexibility will allow for a more efficient planning and review process for the CSI M&E plan. Energy Division believes this approach represents the appropriate mix of due process, a representation of various opinions, and expeditiousness, and plans to retain the right to make further changes in the future.

5. M&E Plan Revisions Summary

The recommended revisions to the CSI M&E plan are provided in Table 1. The CSI M&E budget and scheduling planning worksheet based on the proposed revised CSI M&E budget are included in Table 2.

Table 1 – General Market 2013 M&E Update Summary

| Study Category | April 2011 CSI M&E Plan | 2013 CSI M&E Update |
|------------------------------------|---|--|
| Project Coordination | <ul style="list-style-type: none"> Budget: \$1.2 million | <ul style="list-style-type: none"> Budget: \$1.13 million |
| Impact Evaluation and CSI Metering | <ul style="list-style-type: none"> Remaining Impact Evaluations conducted on a biennial basis (2013, 2015, 2017) Analysis and Reports Budget: \$10.6 million Metering Budget \$3.7 million | <ul style="list-style-type: none"> Remaining Impact Evaluations conducted on a biennial basis (2013, 2015, 2017) Analysis and Reports Budget: \$8.09 million Metering Budget \$3.66 million |
| Process Evaluations | <ul style="list-style-type: none"> Conduct 1 additional Process study in 2014 – two total for entire program Budget: \$450,000 | <ul style="list-style-type: none"> Possibly conduct one additional study. Budget: \$380,000 |
| CSI/NEM Cost-effectiveness studies | <ul style="list-style-type: none"> Conduct 1 additional C/E Study Budget: \$1.35 million | <ul style="list-style-type: none"> Conduct 1 additional C/E Study Budget: \$1.85 million |
| Market Transformation Studies | <ul style="list-style-type: none"> Conduct 2 studies – 2011 and 2014 Budget: \$1.5 million | <ul style="list-style-type: none"> After current study, conduct one more in 2016. Budget: \$1.50 million. |
| External Financial Audit | <ul style="list-style-type: none"> Same schedule Budget: \$900,000 | <ul style="list-style-type: none"> Audits every two years. Budget: \$880,000 |
| CSI M&E Staffing | <ul style="list-style-type: none"> M&E staff time funded from CSI M&E budget Total Budget: \$3.9 million | <ul style="list-style-type: none"> M&E staff time funded from CSI M&E budget Total Budget: \$3.10 million |
| AB 578 DG Impact Study | <ul style="list-style-type: none"> Biennial Studies (2012, 2014, 2016) Total CSI portion of budget: \$210,000 | <ul style="list-style-type: none"> The 2014 study may include results from the in-depth Transmission and Distribution study. Budget: \$210,000 |
| Transmission & Distribution | <ul style="list-style-type: none"> Budget as required by D.10-09-046: \$1.25 million | <ul style="list-style-type: none"> Budget: \$1.25 million |
| Public Reporting | <ul style="list-style-type: none"> None | <ul style="list-style-type: none"> \$300,000 on-going annually Budget \$1.20 million |
| | <ul style="list-style-type: none"> | <ul style="list-style-type: none"> |
| Optional Analyses | <ul style="list-style-type: none"> Total Budget: \$1.64 million | <ul style="list-style-type: none"> Total Budget: \$1.87 million |

Attachment B: Summary of CSI M&E contracts by type and by year
7/10/2013

| | Sub-Totals: | | | | By Year: | | | |
|------------------------------------|--------------|----------------|------------------|---------------|---------------------|------------|------------|--------------|
| | Completed | Currently Open | Future Estimated | Total | Current Plan Budget | 2008 | 2009 | 2010 |
| General Market | | | | | | | | |
| Project coordination | \$ - | \$ 732,847 | \$ 400,000 | \$ 1,132,847 | \$ 1,200,000 | | \$ 125,828 | \$ 242,236 |
| Impact evaluations | \$ 5,287,976 | \$ 799,725 | \$ 2,000,000 | \$ 8,087,701 | \$ 10,600,000 | | | \$ 4,069,038 |
| CSI metering | \$ - | \$ 3,655,121 | \$ - | \$ 3,655,121 | \$ 3,700,000 | | | \$ 1,564,069 |
| CSI metering scoping (KEMA) | \$ 303,747 | \$ - | \$ - | \$ 303,747 | \$ - | \$ 303,747 | | |
| Process evaluations | \$ 171,992 | \$ - | \$ 208,676 | \$ 380,668 | \$ 450,000 | | | \$ 171,992 |
| CSI/NEM cost effectiveness studies | \$ 1,445,649 | \$ - | \$ 400,000 | \$ 1,845,649 | \$ 1,350,000 | | | \$ 945,649 |
| CSI M&E personnel | \$ - | \$ 3,098,339 | \$ - | \$ 3,098,339 | \$ 3,900,000 | \$ 966 | \$ 239,841 | \$ 366,135 |
| Financial audit | \$ 212,391 | \$ 198,450 | \$ 466,666 | \$ 877,507 | \$ 900,000 | | | \$ 212,391 |
| Market transformation study | \$ - | \$ 737,902 | \$ 762,098 | \$ 1,500,000 | \$ 1,500,000 | | | |
| AB 578 DG impacts | \$ - | \$ 99,978 | \$ 110,000 | \$ 209,978 | \$ 210,000 | | | |
| Trans. & Dist. Study | \$ - | \$ - | \$ 500,000 | \$ 500,000 | \$ - | | | |
| Public Reporting | \$ - | \$ - | \$ 1,200,000 | \$ 1,200,000 | \$ - | | | |
| AMI PV | \$ 38,636 | \$ - | \$ - | \$ 38,636 | \$ - | | | |
| GM subtotal | \$ - | \$ - | \$ 1,869,807 | \$ 1,869,807 | \$ 1,640,000 | | | |
| Optional / Reserve Funding | \$ - | \$ - | \$ - | \$ - | \$ - | | | |
| MASH/SASH | \$ 649,176 | \$ - | \$ 1,510,824 | \$ 2,160,000 | \$ 2,160,000 | | | \$ 649,176 |
| CSI Thermal M&E | \$ 5,863 | \$ - | \$ 6,244,137 | \$ 6,250,000 | \$ 6,250,000 | | | |
| RD&D | \$ - | \$ - | \$ 500,000 | \$ 500,000 | \$ 500,000 | | | |
| Total | \$ 8,115,430 | \$ 9,322,362 | \$ 16,172,208 | \$ 33,610,000 | \$ 34,360,000 | \$ 304,713 | \$ 365,669 | \$ 8,220,686 |

This table assigns all costs from any individual contract to one calendar year, based on the year in which most of the costs were incurred (except for Proj. coord, CSI metering).
The actual amount spent is shown for completed contracts.
The amount contracted is shown for currently open contracts.
The estimated amount is shown for future estimated contracts.

| 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total 2008-2017 | Authorizing Decision(s) |
|--------------|--------------|--------------|--------------|---------------|--------------|--------------|-----------------|---------------------------|
| \$ 122,632 | \$ 79,145 | \$ 163,007 | \$ 100,000 | \$ 100,000 | \$ 100,000 | \$ 100,000 | \$ 1,132,847 | D.10-09-046 |
| \$ 1,218,938 | \$ 55,917 | \$ 799,725 | \$ 388,677 | \$ 1,000,000 | \$ 1,000,000 | \$ 1,000,000 | \$ 8,087,701 | |
| \$ 91,751 | \$ 388,677 | \$ 388,677 | \$ 388,677 | \$ 388,677 | \$ 388,677 | \$ 388,677 | \$ 3,655,121 | |
| | | | \$ 208,676 | | | | \$ 303,747 | |
| | \$ 500,000 | | | \$ 400,000 | | | \$ 380,668 | |
| \$ 263,387 | \$ 228,010 | \$ 400,000 | \$ 400,000 | \$ 400,000 | \$ 400,000 | \$ 400,000 | \$ 1,845,649 | |
| | \$ 198,450 | | | \$ 233,333 | | \$ 233,333 | \$ 3,098,339 | |
| | \$ 99,978 | \$ 737,902 | | | \$ 762,098 | | \$ 877,507 | |
| | | | \$ 1,250,000 | | \$ 110,000 | | \$ 1,500,000 | |
| | | \$ 150,000 | \$ 300,000 | \$ 300,000 | \$ 300,000 | \$ 150,000 | \$ 209,978 | |
| \$ 38,636 | | | | | | | \$ 1,250,000 | |
| | | | | | | | \$ 1,200,000 | |
| | | | | | | | \$ 38,636 | |
| | | | | | | | \$ 23,580,193 | |
| | | | | | | | \$ 1,869,807 | |
| | | | | | | | \$ 2,160,000 | D.08-10-036 / D.07-11-045 |
| \$ 5,863 | | | | \$ 6,244,137 | | | \$ 6,250,000 | D.10-09-046 / D.10-01-022 |
| | | | | \$ 500,000 | | | \$ 500,000 | ED Directive |
| \$ 1,735,344 | \$ 1,167,363 | \$ 2,639,310 | \$ 2,647,353 | \$ 11,076,971 | \$ 2,060,775 | \$ 4,141,816 | \$ 34,360,000 | Ref. D.11-07-031, T.4 |

ring, and CSI M&E personnel)